Rib Mountain State Park Regional Analysis

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Bureau of Parks and Recreation
Rib Mountain State Park Core Team

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Executive Summary

Rib Mountain State Park is the highest natural feature in North Central Wisconsin and dominates the central Marathon County landscape in which it is found. People have always been drawn to the park for the breathtaking panoramic views and the mountain's unique geologic features. At more than 1.7 billion years old, the quartzite rock that makes up the core of the mountain, is some of the oldest rock on earth.

In recent years, Rib Mountain State Park has transitioned from its rural Marathon County roots to today providing a natural setting in an increasingly urbanized community. Rapid development around the base of the mountain speaks to the desire that many have of living in close proximity to the park. This desire has created a variety of opportunities and threats to the integrity of the park. For instance, strong community support has always been a hallmark of assistance to park management, but its "island of green space" in an urban setting, tends to isolate the park from natural communities and ecological systems in the larger region in which the park is found.

The park attracts thousands of visitors each year. Many travel long distances to come to Rib Mountain, most though are from the local region surrounding the park. These "day use" visitors arrive year round to take in the views, hike trails, and observe nature, picnic or participate in social gatherings. In the fall, thousands flock to the mountain to take in the brilliant colorama season. The parks' small campground accommodates over night visitors, but generally speaking, Rib Mountain is not a destination park in the same way that visitors travel long distances to vacation at other parks in the state park system. Downhill skiing has long dominated winter recreation at the park. Today, Granite Peak Ski Corporation leases 406 acres of the park to own and operate its facilities on the ski hill. The provisions of that lease are included in a binding contract negotiated between the State of Wisconsin and Granite Peak Ski Corporation in 2000 and as such are not a focus of the Master Plan revision slated for the rest of the State Park. Following a lengthy public involvement process in 2001, the department approved a variance to the present property master plan permitting the expansion of the ski hill to current levels.

Not surprisingly, the park's steep terrain dictates where park infrastructure and other development can occur. Rib Mountain State Park totals 1,528.6 acres, but only a fraction of the park is suitable for development. The "Core Developed Area" at the top of hill encompasses about 80 acres or 7% of the total acreage. This generally flat area, accommodates all of the park's buildings, most of its public use areas, as well as private leased areas for communications towers and associated buildings. Slopes on the remainder of the hill are generally too steep to accommodate routine construction and facilities development. As a result, primitive hiking trails that course generally down and across the south side of the hill are the only sign visitors see of park facilities once they step away from the "Core Developed Area." Presently, there are no trails that link visitors to the recently acquired "3M" property and quarry to the west.

Little is known of prehistoric land use around and on Rib Mountain; however, archeologists believe there is little probability of significant sites within the park because of its distance from water. While there are no known archaeological sites in the park, there are a number of historic structures built by the Civilian Conservation Corps (CCC) in the 1930's. Mining played a key role in the history and development on the mountain. Today decades of quartzite mining for use in sandpaper grit, is evidenced by the quarry pit on the northwest flank of the park.

Historically, forests of hemlock, sugar maple, yellow birch and white pine dominated the region surrounding Rib Mountain. Today, even aged second growth mixed hardwood stands describe the park's forest resource. On the local landscape, Rib Mountain State Park contains a relatively rare large block of contiguous forest in the urban setting in which it is found. As a result, future forest management in the park should recognize this unique forest resource with goals and objectives that improve on present day management.

A recent survey of the park has revealed that three plants listed in Wisconsin of "Special Concern" have been found in the park, Deam's Rockcress, Purple Clematis and Butternut. A small population of the state threatened plant, Drooping Sedge, was identified on the rocky, lower south slope of the park.

No federal or state listed endangered or threatened wildlife species are known to reside in the park. In general, wildlife resources at Rib Mountain are similar to those found in the larger region. Small game species such as squirrel, rabbit and raccoon are commonly found. Other species such as red fox, coyotes, bobcat and even the occasional black bear have visited the park. Year round resident bird species include ruffed grouse, woodpeckers, chickadees and red and white breasted nuthatches. Seasonally, migratory birds utilize the park's forest for nesting sites or resting spots. The abundant deer herd is causing extensive damage to vegetative resources in the park. The recovery of vegetation on the forest floor, in large measure is dependent on controlling the large deer herd.

The Region

Rib Mountain State Park is located in the Marathon County Town of Rib Mountain. The mountain, for which the State Park is named, is the highest natural feature in North Central Wisconsin and dominates the central Marathon County landscape. People have always been drawn to the mountain because of the breathtaking views it affords of the surrounding countryside, and of the mountain's unique geology that makes it one of the oldest natural features on earth. In recent years, people have also been attracted to the mountain because it provides a more natural setting in an increasingly urbanized community.

Twenty years ago, woodlands and farm fields surrounded much of Rib Mountain State Park. Today, the view from the mountain is very different. Subdivisions of middle and upper middle income homes ring the base of the mountain on much of its north, east and south sides. This trend toward urban development will likely continue as skyrocketing land values speak to the desirability many find of living near the park.

Beyond the immediate borders of the park, the town of Rib Mountain, and its sister communities in central Marathon County are rapidly growing as well. According to the latest census figures, more than 91,000 people live within view of the park. The city of Wausau, with more than 39-thousand people, is the largest city in north central Wisconsin and lies just east and north of the park. By 2015, the population in the Town of Rib Mountain is expected to grow by 15% from current levels. Over the last ten years, commercial development along the Highway 39/29 corridor near the park has grown at an unprecedented rate. As a result, the park has been described by some as an "island of green space" in the middle of an ever-growing urban area (see Figure 1 - Regional Ownership Map).

Beyond the immediate vicinity of the park, the more rural nature of Marathon County and Central Wisconsin predominates. At 1,541.1 square miles, Marathon is the largest county in Wisconsin and ranks near the top in several important agricultural categories. The county ranks second in the state in milk production behind neighboring Clark County, and first in the production of barley and ginseng. The county ranks second in the state in the production of alfalfa, oats, and corn silage. Small family farms still dominate the landscape with an average size of about 170 acres.

Besides farming, other major land uses in the county include industrial forest holdings, privately held forestlands (See Figure 2 - Regional Land Cover Map). The county and its municipalities are the major landowners maintaining well-developed county and town parks, along with well managed county forests and recreation areas.

The park is not in the ceded territory claimed by Chippewa Indian tribes for hunting, fishing and gathering rights.

The park is well situated in its central Marathon County location to attract visitors from the local community as well as from across the state and the upper mid-west. Two Marathon County highways, "NN" and "N" respectively, skirt the park to the north and south, and a well-developed system of town roads makes local access to the park easy. Highway 51/39 connects the park to travelers from the north and south, while Highway 29 brings visitors from the east and west. Two airports serve the area, the Wausau Municipal Airport, is used primarily for private aircraft while commercial travelers arrive and depart from the Central Wisconsin Airport near Mosinee. Other than a short segment of snowmobile trail on the southwest side of the park, no other motorized or non-motorized recreation trails connect the park to the larger community.

Regional Recreational Opportunities

Central Marathon County is blessed with an abundance of year round outdoor recreation opportunities. Rib Mountain State Park is one component of a larger and more significant system of outdoor recreation available beyond the park entrance. Twenty minutes away are Council Grounds State Park, near Merrill, and the Mountain Bay State Park Trail to the west.

- Council Grounds State Park, at 508-acres is located along the Wisconsin River just west of Merrill. Visitors to Council Grounds find well-developed day use facilities including campgrounds, trails, picnic areas and shelters, a swimming beach, boat launch and water ski landing.

- The Mountain-Bay State Park Trail, is approximately five miles to the east of the park. This multi-use trail is 83-miles long runs along an old abandoned rail bed from the Marathon County Town of Weston to Brown County near Green Bay.

- Nine-Mile County Forest is a multiple use forest of more than 4,900 acres. It is heavily used for year round recreation including cross country skiing, biking, hiking, and hunting. The forest resource at Nine-Mile are actively managed with on-going timber sales.

In addition to the above listed sites, Marathon County is particularly rich in outdoor recreational opportunities. Taken together, the county along with its associated cities and towns maintains: 50,000 acres of public access land, 34 local parks, 23 county parks, 55 km of cross country ski trails, 641 miles of snowmobile trails, 450 miles of summer and winter ATV trails, 43.2 km of mountain bike trails, 118.35 miles of hiking trails, two downhill ski areas, 8 swimming beaches, a world-class whitewater kayak and canoe course, 6 boat landings, 5 swimming pools, 21 softball/baseball fields, 23 tennis courts, 8 golf courses, and 11 ice skating rinks.

Besides Rib Mountain State Park, a combination of public and private campground operators in greater Marathon County offers nearly 400 campsites. The majority of those sites are fully developed with showers, flush toilets and electrical service. Most campsites are filled during summer weekends, with vacancies during the week.

Park Links to the Community

The park and the local community have long been linked together in mutual interest. From the park's infancy to the present day, area residents, civic organizations and local governments have supported on going management efforts at the park. Community interest over the years has ensured long term survival of the downhill ski operation. When opportunities arose to expand the boundary of the park, local citizens supported that effort. In recent years, community involvement increased as "The Friends of Rib Mountain State Park" organized to provide a higher level of local citizen support on behalf of the park. The efforts of this advisory group are apparent in many aspects of present day park management. The fund raising prowess of the "Friends" is evident in the construction of the shower building facility near the campground. The "Friends" have also been instrumental in upgrading equipment and supplies for park staff to conduct on going maintenance. Lately, the organization has been instrumental in raising money to develop a new nature center that will become part of the park's new visitor contact center. The "Friends" Board of Directors regularly meets with park staff to discuss park management and other issues of mutual concern.

More recently, other grassroots community organizations have formed to advocate on behalf of the park. These organizations have been effective in advocating their point of view to park

management, and their members regularly contact the department on park issues they care about.

The park is closely linked to other public outdoor recreation lands in the vicinity (see Figure 1 "Regional Land Ownership Map"). One outcome of this is that local residents have many choices for outdoor recreation so they don't have to rely on the park as the sole recreation provider in the region. Another outcome may be the chance to explore how the park and nearby public lands may fit together for mutual resource enhancement and protection while still providing recreational opportunities unique to each property. For instance, just to the southwest of Rib Mountain State Park, Marathon County manages the Nine-Mile County Forest.

There are substantial blocks private lands, including industrial forestlands near the park. Some of these lands lie in relative close proximity to Rib Mountain. In addition to providing sources for lumber, pulp and associated industries, these forested lands provide numerous recreational opportunities, habitat for fish and wildlife, and provide a stable environment along streams and in other critical resource areas.

Many expect that in the not too distant future, the park will be entirely surrounded by urban development. Before that time decision makers may need to consider how the park fits with other public recreation lands in its region, and the potential to reach out to them. One option may be expanding the boundary of the park. Presently, the only place to consider this is south and west of the park, where parcels of privately held undeveloped land still remain along the park boundary. The State of Wisconsin only buys land from willing sellers. Therefore landowners would have to balance the steadily increasing market value of their land against the state's ability to pay before deciding whether public or private ownership best matches their goals.

Ecological Setting

On a broad scale, Rib Mountain is located within the Forest Transition Ecological Landscape. The Forest Transition occupies nearly 4.7 million acres in central Wisconsin. It is formed on a glacial till plain in material that is older than most glacial surfaces in Wisconsin. The till was deposited more than 25,000 years ago, prior to the Wisconsin Glaciation. Soils are predominantly a productive silt loam, and numerous wetlands occur where the water table is close to the surface. Areas of outwash sand are found along river valleys where they were deposited by glacial meltwater. The area is predominately underlain by igneous, metamorphic, and volcanic bedrock, which occasionally outcrops at the surface. The varied processes that formed the physical environment led to the development of a complex, heterogeneous ecosystem.

At the time of the first land survey in the mid-1800's, the entire Ecological Landscape (EL) was heavily forested with sugar maple, hemlock, yellow birch and white pine. More than half the area has since been deforested for agriculture or other uses. Today, the Forest Transition is 57% non-forested, with agricultural land (1.5 million acres) and grassland (664 thousand acres) predominating. Forest still covers 43% of the EL, with maple-basswood and aspen-birch types making up a bulk of the existing forest. Publicly owned forests in the EL, including county, municipal, state, and federal holdings, occupy about 267,000 acres (5.7%). State-owned forested lands total nearly 48,250 acres, of which about 33,500 acres are on uplands. Forested areas where timber harvest is not currently permitted, except to address safety concerns, occupy about 6,960 acres (0.15% of land area) in portions of State Parks, Trails, and Natural Areas.

Looking more closely at the area around Rib Mountain, the Rib Mountain Landtype Association (LTA) covers approximately 14,270 acres in the central portion of the Forest Transition EL. Rib Mountain rises above the complex landscape of till plain, wetland, and glacial outwash that surrounds it. Its topography is hilly with predominately well-drained silt loam soils. Rib Mountain itself is quartzite, with the surrounding landscape underlain by Precambrian granite rock. The Rib Mountain LTA includes Upper and Lower Mosinee Hill and Hardwood Hill. Together with Rib

Mountain, these hills form a sweeping crescent that encircles Ninemile Swamp. The impressive ridge is almost four miles long and peaks at 1924 feet above sea level. Current landcover of the LTA is upland deciduous forest (61%), agriculture or grassland (23%), and urban (3%).

Historically, forests of hemlock, sugar maple, yellow birch, and white pine dominated the Rib Mountain LTA. Logging and drought in the early 1900's was followed by severe fires that virtually eliminated the hemlock, yellow birch, and white pine components; today's forests are dominantly 80-year old sugar maple. This kind of forest is common throughout northern Wisconsin, but a contiguous patch of this size is an unusual feature within the Forest Transition Ecological Landscape. Elsewhere, the EL has been largely converted to open agricultural land, with small-interspersed patches of forest (Refer to Figure 2 - Regional Land Cover Map"). An expanding urban area surrounds Rib Mountain. A large forest patch can provide habitat for species that are area-sensitive, or that require interior forest conditions. The topography and geology of Rib Mountain lend an additional uniqueness, making these hills a highly recognizable feature of the area.

Rib Mountain has the potential for harboring unusual species, (note the following discussion on Rare and Endangered Resources) based on its size and forest cover, unusual geology and topography, and location in proximity to Nine Mile Swamp and major valleys of the Wisconsin and Rib Rivers.

There are opportunities for restoring components of the original forest type, by planting hemlock, yellow birch, and white pine. However, to be successful, deer browsing must be controlled until the trees are tall enough to survive. With the current high deer density in the area such restoration efforts could be difficult and expensive.

Threats to the ecological integrity of Rib Mountain include residential and recreational development that results in habitat loss and fragmentation. Secondary effects of an increased human presence potentially include an increase in populations of predators like skunks, raccoons, and free-ranging cats; vegetation trampling; spread of invasive species; air pollution; frightening of wildlife, etc. Known ecological threats within the Rib Mountain area include the presence of the invasive non-native shrub glossy buckthorn, and excessive browsing by white-tailed deer. The area is especially vulnerable to invasion by garlic mustard, which thrives in forests on loamy soils and often invades from seeds spread by recreationists, and may already be present in the area.

Forest and Vegetative Resources

In 1982, the park's master plan described the property's forest resource as predominately even aged, second growth northern hardwoods with a much smaller component of pine tree species. An updated forest survey was conducted for the park in 2003 (Refer to Figure 3 "Existing Vegetative Cover Map"). This report has revealed that little has changed in the forest cover of the park in the past 21 years. In general, the vegetative understory growth on the forest floor is lacking, except in some cutover areas of the park and those areas maintained for vistas. This condition is primary due to browsing from an overly abundant deer herd residing within the park boundary. 21 years ago, the property master plan described the difficulty of perpetuating northern hardwood stands in the main use areas of the park. Today, this concern remains due to thin soils and rock outcrops.

In August 2003, staff from the Department's Bureau of Endangered Resources conducted an inventory of the park's natural communities and rare plants. Staff concentrated their efforts on a 570-acre area in the western portion of the park. This area was selected, based on that area's natural features, their relative quality, condition, size, context, and potential for rare plants. Specific to the forest resource in the park, this survey noted that deciduous trees (hardwoods) now dominate throughout much of the park. The structure and composition of most stands of these trees have been greatly simplified from their historical condition. The present distribution of

conifers (Pine) is limited. Hemlock is locally common, but restricted to a few areas. White and red pine are now rare.

The report further notes that on the local landscape, Rib Mountain State Park contains a relatively large block of contiguous forest with high canopy closure. This condition, the report states, is rare in the larger region in which the park is found, particularly in land held in public ownership. As a result, the forest resources of the park are highly important and the habitat needs to be maintained. The report notes that this is essential due to rapid urban development in the area that tends to isolate Rib Mountain from the larger landscape. Also, older forests and reserved forestlands such as those found at the park are generally poorly represented in the Forest Transition Ecological Landscape in which the park is found

Rare and Endangered Resources

Until August 2003, we simply didn't have a lot of first hand information regarding rare, threatened or endangered resources within the park boundary. During this period, staff from the Department's Bureau of Endangered Resources (BER) conducted a survey to look for rare plants and animals in the park. They concentrated their efforts in a 570-acre portion of Rib Mountain generally on the park's west, northwest and south sides. These areas of the park are considered important because if rare plants and animals exist in the park they are likely to be found in these portions of the park that have managed to remain relatively undisturbed.

As mentioned above, Rib Mountain does constitute a large block of moderately fragmented, moderately isolated, second-growth upland hardwood forest that has become somewhat rare in its region. Within this climate, three plants of Special Concern were identified in August 2003 by BER staff. Deam's Rock Cress (Araibs missouriiensis Var. Deamii), Purple Clematis (Clematis occidentailis) and Butternut (Juglans cinerea). In addition, a small population of the state threatened plant species, Drooping Sedge (Carex prasina), was identified on the rocky, lower south slope of the park. Beyond this area of investigation, the area of greatest ecological interest in the park is the mature mesic forest on the northwest end, the glades and forest on the ridge top and upper slopes, and the south slope dry mesic forest.

The forest on the northwest end of the park is unique because it is mesic, mature, with some patches of closed canopy large trees. Here, the herb layer is relatively rich and includes spring ephemerals. None of these features are common in the park. There are areas with groundwater seeps that have the potential to support the state-threatened plant, drooping sedge.

The ridge top and upper slopes between the developed area of the park and the quarry are the single most important feature of Rib Mountain State Park. According to the survey report conducted by BER, this area is relatively undisturbed and receives lower usage than the developed area of the park. The bedrock glades, open and forested talus slopes, and the ridge top forest are the best remaining examples in the park. This area supports viable populations of a at least two special concern plants, purple clematis and Deam's rockcress, and good quality habitat for them. The state special concern tree, butternut, occurs on forested talus slopes but is threatened by butternut canker.

The south slope forest supports the most extensive tract of forest in the park. There are areas of groundwater seepage in this area, at least one of which supports a small population of the state threatened plant, drooping sedge. If left unlogged, undeveloped, and undisturbed this forest has the potential to provide the best example of interior forest in the park.

The highest potential for additional rare plant inventory is for drooping sedge in forest seepages in the northwest and southern slopes of the mountain.

The BER study did not find non-native invasive plant species to be a problem in the park.

Both Cerulean and Hooded Warblers are listed on the state threatened species list. These birds have been reported at nearby Nine-Mile County Forest as "probable" breeders. BER has advised park staff that a breeding bird survey in the park should definitely be conducted to look for Cerulean and Hooded Warblers as well as other bird species of interest.

No other federal or state protected animal species are known to reside within the boundary of the park.

Wildlife

Wildlife resources within the park are very similar to the larger region surrounding Rib Mountain. However, it is the overly abundant deer herd that most frequently garners the most attention of park managers and neighbors near the park. In its increasingly urbanized setting, the park has become a sanctuary for a large deer herd. In this environment hungry deer have two choices to obtain food. They can stay within the boundary of the park, or head into the nearby residential neighborhoods to support their needs. There is evidence they are doing both, and they are causing extensive damage to vegetative resources within the park and in the neighborhood beyond the park boundary.

In 2001, the Department hired a private botanist to search the vicinity of the ski hill leased area for plants on the state threatened and endangered species list. He concluded that the overly abundant deer herd had eaten most of the understory of the forest, eliminating the possibility of finding those plants. There was, he said, a readily apparent “browse-line” where deer are able to reach into the foliage for food. Outside the park, deer damage to shrubs and ornamental plants can also be found.

Department efforts aimed at reducing the size of the deer herd in the park have not been successful. In recent years, deer hunting during the state archery and muzzleloader seasons have been tried with mixed results. The “primitive” nature of archery and black powder firearms limits overall hunter success.

Moreover, the steep terrain and restricted access to all parts of the park has further limited hunter success. For example, in the fall of 2002, hunters did not have access to the 406-acre ski hill leased area or on the 257-acres formerly owned by 3M Corporation. This effectively created a sanctuary for deer on much of the north side the park reducing overall hunter success.

In recent years, recreational deer feeding outside the park has exacerbated damage to vegetation in residential neighborhoods adjacent to the park as well as within the park. The statewide ban on feeding deer that went into effect on July 2002 may reduce deer damage over time. However, more effective deer herd management efforts still need to be considered in order to reduce the size of the deer herd in and near the park. This will take a partnership effort between local government, residents and the Department to accomplish.

The deer herd is one facet of Rib Mountain’s wildlife resources. Small game species such as squirrel, rabbit and raccoon are commonly found. Other species such as red fox, coyotes, bobcat, and an occasional visiting black bear have been known to frequent the park. Due to its lack of surface waters, Rib Mountain does not provide suitable habitat for waterfowl. However, waterfowl and other wildlife including deer have occasionally been observed in and around the water retention ponds for the ski hill.

Year round resident birds include ruffed grouse, downy, hairy and pileated woodpeckers, black-capped chickadees and red and white-breasted nuthatches. As was noted above, it is possible that Hooded and Cerulean Warblers, both on the state threatened species list, also nest in the vicinity of the park. The mountain’s natural topography and its island of forested cover in a rapidly developing urban environment, provides seasonal migratory birds such as vireos, warblers and wood thrushes the opportunity to utilize the forest for nesting sites and as a stop over location during annual migrations. Turkey vultures soar overhead and nest on the rocky cliffs of

the old 3M quarry. Flocks of wild turkeys, that in recent years begun to flourish in Central Wisconsin, have taken up residence within the park.

Water Resources

A small wetland area can be found at the base of the State Park, on the edge of the northeast boundary at the corner of Oriole and Raven Avenues in the Town of Rib Mountain. It is likely that wetlands around the base of the mountain were once more numerous, but were drained and filled to accommodate agricultural and urban development. Wetlands can be more generally found across the region, and are important for wildlife, waterfowl and spawning fish, particularly northern pike.

Naturally occurring springs can be observed in many locations along the base of the mountain**.**

Geology

People have always been drawn to the mountain because of their fascination with its geology. When you go to Rib Mountain you'll be standing on some of the oldest rock on Earth. Geologists estimate the mountain to be at least 1.7 billion years old. The predominate rock that makes up the mountain is quartzite. The core of the mountain is Rib Mountain Quartzite, a pure, white form of quartzite. A pink tinge to the rock indicates the presence of iron. This rock was formed after extreme heat and massive pressure deep in the earth turned ancient sandstone into an extremely hard metamorphic substance known as quartzite. Molten, or igneous rock from the earth's core later pushed northern Wisconsin's bedrock into a dome, making the land much higher than it had been.

About 600 million years ago, geologists believe a sea formed over much of this area and remained in place for about 250 million years. As the water receded, the erosional powers of wind and water began to wear away at the sediment and softer rock in the area, leaving behind Rib Mountain, Mosinee Hill just to the south and Hardwood Hill just to the west, to stand above the plain. These protruding geologic features are called monadnocks. From the observation tower atop Rib Mountain, one can find good views of Mosinee and Hardwood hills.

The work of nature is on going at Rib Mountain. Though quartzite is an extremely hard rock, it does not escape nature's erosional forces. Cracks in the rock called "joints" allow water to enter. As the picture to the right by Dr. Steven Dutch UW-Green Bay indicates, this seasonal freezing and thawing action expands these joints and over time can cause breaks in the rock.

Gravity tumbles the boulders down the mountain forming talus slopes. Individual boulders can weigh more than a ton. The observation tower south of the concession stand in the park offers terrific views of these slopes.

Rib Mountain's 4.5-mile east-west ridge towers 1,940 feet above sea level; not very high for a mountain. One theory is that Rib Mountain is called a mountain because of its local relief. Local relief is the difference in elevation between the high point and the surrounding landscape. Rib Mountain is 780 feet above Lake Wausau.

Soils

The soil on Rib Mountain is good for growing trees and not a lot else. According to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) Soil Survey for Rib Mountain, Ribhill Cobbly Silt Loam (RbC), and Ribhill Cobbly Silt Loam (RbE) are virtually similar except for the percent of slope on the mountain in which they are found. This kind of soil is best suited to trees, and unsuited for cropland, or pasture because of the slope and many cobbles, stones and rock outcroppings. This soil is suited to the development of woodland wildlife habitat and recreational opportunities similar to those presently found in the park.

Cultural Resources

Early History

Rib Mountain is the highest natural feature in Marathon County and Native Americans could have used it as a sort of rocky observation tower to view their world. In addition, the mountain may have served as an important landmark for travelers about to negotiate the dangerous rapids of the Wisconsin River and for those moving over land along ancient trails.

In her study, "Cultural Resources in Rib Mountain State Park, February 22, 1996", DNR Archaeologist, Victoria Dirst, noted that Native American settlement in north central Wisconsin began around 9200 B.C (see Figure 4 - "Cultural Resources Map"). Unfortunately, little is known of prehistoric land use in the Rib Mountain vicinity. There are a few sites recorded along the Wisconsin River in Wausau, and a couple west of the park along Kennedy Creek, but no known archaeological sites within the park *per se*. Dams along the Wisconsin River have no doubt flooded many former campsites and villages.

For millennia Native Americans canoed up and down the Wisconsin River, traveling to seasonal settlements, and places of trade and group celebrations. When Euro-American explorers arrived in the 1600s they, too, used the river as a favored route of travel.

The “rib” in Rib Mountain comes from the Chippewa name for the mountain. A letter from the Wisconsin State Historical files, dated July 17, 1941 states: “We find that the Indian names for Rib River is O-pic-wun-a-se-be. The first part of the word, O-pic-wun-a, means rib. The word rib may have signified the elevation of Rib Hill.” Even the name of the nearby community of Wausau seems to be associated with Rib Mountain. According to historical records an elderly Chippewa man said that the name Wausau means “a place you can see far away,” an obvious reference to Rib Mountain.

Logging

Federal land surveyors’ notes report that the natural vegetation of Rib Mountain in 1840 was a dense hemlock/northern hardwood forest. Included in this forest mix were yellow birch, sugar maple, red maple, basswood and white birch. In his study of Rib Mountain, Emeritus Professor Gene Musolf, UW-Marathon County, found that due to its steep and rocky terrain, the mountain was “largely bypassed by loggers in the 1800s, and the forest remained essentially in its native state until 1910.” (*“The Crystalline Monadnocks of North Central Wisconsin,”,* Musolf, 1984:216). He relates in his report that in July of that year, following a period of severe drought, a disastrous crown fire destroyed nearly all of the canopy trees on the mountain.

> *“This fire stretched for miles and was plainly visible from the city.”*
> *(Wausau Pilot, July 26, 1910)*

Loggers moved in and by the latter part of 1911 had removed all of the salvageable timber. An inventive operator devised a wooden chute that made it possible to slide large logs down the steeper slopes allowing for more rapid removal. Musolf reports that vegetation on the mountain in the years following logging was predominantly aspen, with considerable white birch and shrub species.

John Newhouse and Harold Miner in their History of Wausau, provide the following first hand description of the vegetation on the mountain shortly after logging:

> *“The forest in fall is richly colored; dead red sumac mask heaps of sunlit boulders amid the heavier growth, and the yellow of popple and birch and the flaming hues of the maples. In spring, despite the destruction of much of the original flora, there are many wild flowers – squirrel corn, spring beauties and notably trilliums.”*

Musolf (1984:217) reports that by the 1980s the forest had largely recovered, being "dominated by northern hardwood communities on the more gentle slopes while white birch/mountain maple and aspen/white birch/yellow birch communities were predominant on the steeper north and south slopes, respectively."

Mining

An industry of a different sort arrived at the end of the 1800's to take advantage of the hard rock resource on the mountain, mining. Prospectors searched for rumored veins of gold, and even sank mine shafts in the mountain but nothing ever came of those rumors.

As early as 1893, rock from the mountain was mined and crushed for use in the manufacture of sandpaper. By 1902, the Wausau Quartz Company was crushing quartzite for grinding and polishing purposes. Quartzite is the predominate rock that makes up the geology of the mountain. In 1929, Minnesota Mining and Manufacturing, 3M, purchased extensive property and mineral rights on the mountain. In 1949, a geologist with 3M offered the following report detailing potential commercial applications for the geologic resource at Rib Mountain.

> *The quartzite called "flint" by the sandpaper trade is used chiefly as an abrasive in graded sandpaper, but there are also many other uses. The finer sizes make excellent fillers in soaps, soap powders and asphalts. Coarser grades are used as general aggregates, cast stone and filters. The crushed and graded mineral has a most satisfactory use in the various sizes of poultry grits."*

Today the 18.8-acre quarry on the western side of the park remains as evidence of decades of successful mining commerce tied to the quartzite resource of the mountain. 3M continued its mining activities on the mountain until the mid-1990's. More than one million tons of quartzite was removed from the quarry to be ground into sandpaper grit. In 2001 the state of Wisconsin successfully concluded negotiations with 3M Corporation to purchase 257-acres of their holdings on Rib Mountain. This includes the entire area of the old mine quarry and forested lands to the north and west of it.

Existing Park Facilities

Rib Mountain State Park is 1,528.6 acres with 30 campsites, three with electricity, clustered in one location at the top of the mountain overlooking the northwest side of the park. Additional resources include just over 14 miles of trails and day use areas. Refer to Figure 5 - Existing Features and Facilities Map and Table 1 for a summary.

Table 1
Rib Mountain State Park Recreation Facilities Inventory

Leased Ski Area	406 Acres
Hiking Trails	7.2 Miles
Snowshoe Trails	5.4 Miles
Privately Managed Snowmobile Trail	1.5 Miles
Picnic Area	3.1 Acres w/69 picnic tables, 13 accessible tables, 18 grills, 126 parking stalls
Play ground equipment	2 playground areas
CCC Picnic Shelter	Capacity of about 20 people
Enclosed Picnic Shelter/Historic	Accessible, reservable, interior capacity of 80 people

Two Scenic Observation Points	Open year round
60 ft. Observation tower	Open year round
Amphitheater	Reservable - Seating Capacity of 200, including 4 wheelchair accessible seating areas
30 Campsites	One site is disabled accessible, three of the sites have electric service
Concession stand	Operated by Friends Group - Open seasonally
Maintenance Buildings	2
A-Frame Office and Registration Booth	One each
Interpretive Kiosk	Near Observation Tower
Pit Toilets	3 sets of 5 buildings scattered across the core developed area at the top of the hill.
Flush Toilet Building	Near Concession stand
Shower Building	1
Paved roads	2.5 miles, with a total of 162 parking stalls

Historically Significant Structures in the Park

There are two known historic structures built by the CCC (See Figure 4 - "Cultural Resources Map"). These are briefly noted in a State Facilities Survey report by Hubbard, Kakulis, and Strautmanis (1991:39):

> *In the 1920's the Kiwanis Club of Wausau purchased the first 160 acres of land surrounding Rib Mountain, and donated the land to the state for use as a State Park. The park was officially opened in 1929. The park was new when the Civilian Conservation Corps began its operations in the area. A portion of the existing ski chalet (not surveyed), a stone toilet building (not surveyed), the water system (not surveyed), and most of the trails (34/29) are all work of the CCC during the 1930's.*
>
> *The architecture of the park is mostly newer constructions, but a few nice shelters exist. The highlight is a picnic shelter (34/34) at the top of Rib Mountain – a log structure built in 1932 by the CCC. The simple shelter has heavy log columns and log railings with cross bracing. The roof is new, but still possesses the signature pentagon shape with upturned eaves. The roof structure is exposed log, with log rafter tails. Other evidence of CCC activity can be seen in drinking fountains (34/32), trails (34/29), retaining walls (34/30), and other decorative stone work (34/33).*

The numbers in parentheses are Wisconsin Historical Society photo codes for structures listed in their Architecture and History Inventory. Structures listed as "not surveyed" have yet to be listed in that inventory. Prior to carrying out an action that might impact a structure listed in the inventory, the Department of Natural Resources must consult the Wisconsin Historical Society. This does not pertain to unlisted structures.

Recreational Activities within the Park

Thousands of people visit Rib Mountain State Park each year. Many come from across the state and the country, but most are from the local region near the park. For the most part, these are "day-use" visitors, who come to take in the view from atop the mountain, hike its trails, observe nature, picnic, or participate in social gatherings, such as family reunions, weddings and parties. During the fall, thousands flock to the mountain to take in the brilliant colorama season. On fall weekends, the park has to employ additional staff to handle the large influx of visitors crowding in to view fall colors on the surrounding landscape.

Rib Mountain draws people like a magnet year round to climb its observation towers and walk to its observation points for the view of central Marathon County. The steep terrain of the park is unique in the region, and the mountain's rocky outcrops cause people to wonder about the forces of nature that created the mountain.

The park is popular with local school groups in the spring and fall for classroom outings and education and interpretation programs. Park buildings such as the enclosed shelter are often reserved weeks in advance by local residents for special events. The amphitheater below the park office is a very popular site for weddings and is booked solid for most summer weekends. At times, the crowds associated with special events poses management challenges for park staff.

Some visitors, looking for an aerobic workout, park their cars at the base of the hill near the park entrance on County Highway "N", and either walk or run up the hill, or they ride bikes to improve their level of fitness. In the summer, overnight visitors stay at the park's small campground. Overall, the primary focus of the park is geared to the occasional day use visitor, with most people coming to the park from nearby communities.

As noted in Figure 6 - Rib Mountain North America Campers, Rib Mountain draws a sprinkling of campers from across the country and the Canadian Provinces. However, as Figure 7 - Rib Mountain Midwest Campers, reveals, the majority of campers travel to the park from the Upper Midwest, with the majority from points in Wisconsin. Generally speaking, Rib Mountain is not a destination park in the same way that visitors travel long distances expressly to vacation at Devil's Lake or Peninsula State Parks. For travelers passing through the community, the park is an attractive stop over on the way to somewhere else. They may come to the park on a spur of the moment to see what the park has to offer. For others, the prospect of a somewhat longer stay means that camping is still a popular summer time activity although its overall impact to park operations is less than if the park were a true destination attraction.

Camping at Rib Mountain reached a peak in 1998 but has gradually declined since. Part of the reason for the decline may have been that the park lost ten campsites due to communications tower construction in 2001. Those sites have never been replaced. Another reason may be that the community at large offers hundreds campsites in county forest and park settings, most with full electrical service, some close to water, and others permitting a range of recreational opportunities that the park does not offer. Nevertheless, during peak tourism and recreation events in Marathon County such as the 4th of July, Wisconsin Valley Fair, and Art in the Park, nearly all campsites in the county, including the State Park, are filled.

During the peak camping season, (June-August) campsites at the park are generally full on most weekends, with occupancy rates declining to one-third full later in the week. Since 2000, monthly camper occupancy rates for the park collectively averaged just over 49%. In comparison, nearby Council Grounds State Park is more than 95% full on most summer weekends, and almost half full the remainder of summer weeks.

During the summer of 2003, visitors were surveyed to assess their concerns about the park. 65 comment cards were returned for tabulation. Areas that were rated below average performance included trail signage, and the availability of information, campground sites and picnic shelters. Above average performance was noted by visitors for the overall appearance of the park, its cleanliness, parking and employee courtesy. In general, the survey noted that the average user does not feel that crowding is an issue, and there is strong support for maintaining existing facilities in the park rather than building new structures.

For nearly as long as anyone can remember, downhill skiing has dominated winter recreation use at the park. From the earliest days, after the Civilian Conservation Corps cut the first ski runs in the park and constructed rope tows to assist skiers up the hill, downhill skiing has gradually grown to attract many thousands of visitors to the park each winter. The ski hill and its visitors have become an important component of the overall winter tourism recreation economy of the

region. Over the years, a succession of ski hill operators negotiated long term leases with the state to own and operate facilities on the ski hill. Today, Granite Peak Ski Corporation leases 406-acres of the State Park under the terms of a 30-year lease. The provisions of that lease are the subject of a binding contract negotiated between the State of Wisconsin and Granite Peak Ski Corporation in 2000 and as such are not a focus of the Master Plan revision slated for the rest of the State Park. Following a lengthy public involvement process in 2001, the department approved a variance to the present property master plan permitting the expansion of the ski hill to current levels.

Other winter recreation activities in the park include hiking on designated snowshoe trails that begin at the top of the mountain and course down its south side. In the first weekend of February, the mountain hosts snowshoe racing as part of the Badger State Winter Games competition in the greater Wausau Area. The enclosed shelter can be heated, and is often reserved by groups for special events or meetings. Nature observation and taking in the views of winter in the Wisconsin River Valley are popular activities. The park does not offer winter camping opportunities. The park's observation towers are open year round, and people never seem to tire of the view, even in the dead of winter.

In recent years, visitors to Rib Mountain State Park, excluding skiers coming to the ski hill, have gradually declined from a peak of more than 180-thousand in 1998 to just over 130-thousand in 2001. Last year, that decline appears to have been somewhat reversed as more than 137-thousand people have visited the park through November 2002. Peak seasons for visitors include the May-Aug general summer season, with a large spike in visitors during the September and October period.

Other Property Management Issues

Recent Land Acquisitions

In 2001 the state of Wisconsin successfully concluded negotiations with 3M Corporation to purchase 257-acres of their holdings on Rib Mountain. This includes the entire area of the old mine quarry and forested lands to the north and west of the park. This addition expanded the State Park boundary to its current level of 1,528.6 acres.

A gravel road beginning at the southern terminus of Grouse Road in the Town of Rib Mountain leads up to the 18.8-acre quarry on the northwest side of the mountain. What remains of the quarry today is a mostly level floor forming the base of the pit. A shallow pond of water, no more than a few inches in depth, sometimes forms seasonally as the result of precipitation and runoff from nearby higher ground. Seasonally, emergent plants can sometimes be found here.

The walls of the quarry are for the most part steep and terraced reflecting various stages of mining operations over the years. Mining appears to have left some of the quarry walls unstable. According to DNR Mine Reclamation Specialist, Ken Markart, in some locations, years of drilling and blasting has left the usually very hard and stable quartzite, crumbly and fractured. As a result, potential recreation uses such as rock climbing may be limited due to safety concerns. However, opportunities for interpretation and education throughout the quarry still remain.

The remainder of the property is forest that is comparable to the rest of the park as primarily a mix of hardwood species that were managed over the years by 3M for their timber value.

Leases

There are 406 acres on the north side of the mountain are under a 30 year lease to the Granite Peak Ski Corporation. The leases governing the Granite Park Ski Corporation are not subject to this master plan revision.

Approximately 3 acres of leased space at the top of the mountain are dedicated to radio and television communications towers and associated buildings. The historic record shows that the first of the communication tower leases dates to the late 1950's. Over the years, these state and private sector agreements have recognized the obvious transmission advantages that the highest ground in central Wisconsin offers broadcasters in their tower placement.

In addition to leases, approximately 85 acres of private ownership are within the current project boundary of the property

Slope Suitability

The steep terrain of the mountain further limits options for development projects and facilities in the park. As a result, the majority of the park's facilities have been grouped onto the flatter terrain at or near the top of the mountain. Most of the facilities that require less steep terrain such as the campground, picnic areas and park buildings and other park infrastructure are concentrated in this area. This "Core Development Area" represents a fraction of the overall acreage in the park and is approximately 80 acres, or about 7% of the total area.

Figure 8 - Slope Suitability Analysis Map further describes a slope analysis conducted for Rib Mountain State Park. This analysis describes the type of improvements that are generally suitable for the percentage slope on which the improvements may be placed. These are based on department requirements and generally accepted site design standards. Generally, slopes of less than 10% are regarded as the limit for major site improvements without needing significant site grading, excavation, or structures such as retaining walls or extensive erosion control measures.

The slope analysis for Rib Mountain State Park reveals that about 164 acres or about 15% of the park (excluding the ski hill lease area) is within the 0%-10% slope parameter. As indicated above, approximately 80 acres in this category is in the so-called Core Development Area, running along the spine of the mountain along the park road, to the crest of the hill. The remaining acreage in the < 10% slope category is located along the southern base of the hill, and one 40 acre area at the base of the recently acquired 3M property on the western side of the park.

As a result, opportunities for new or expanded development in the park are limited largely to these areas, and specifically to the Core Developed Area. Not surprisingly, park facilities or roads already occupy the majority of this area. The steep terrain outside of the Core Developed Area limits potential road construction opportunities to other parts of the park. This limits visitor access by vehicles to much of the rest of the park. An opportunity may present itself to extend a road providing vehicle access to the old 3M-quarry area directly from top of the hill. However, this project or other potential projects such as Mt. Bike trails or cross-country ski trails, would entail significant engineering challenges and attendant high costs both in terms of impacts to the park and money. In addition, road construction connecting to the top of the hill from flatter portions of the park, mainly along the base of the hill, would present many of the same challenges as costs and potential impacts to the park would likely be prohibitive. The remaining, more steeply sloped, majority of the park, then, is perhaps best suited for low impact recreation opportunities already

provided at the park, such as; hiking, snowshoeing, nature observation and other uses which typically only require minimal structures, facilities or site modifications.

Findings and Conclusions

From a regional perspective, there are a number of elements to consider in the relationship of Rib Mountain State Park to its local setting. Below are key elements that may define future management options that could occur within the park.

Findings

- People are especially drawn to the park for the views of the surrounding landscape the park's unique geology and nature observation.

- Compared to other parks in the State Park System, Rib Mountain is not a destination park geared for long stays by vacationing visitors. Day use visitors far outnumber overnight visitors. It is likely that the park draws most of its visitors from the local community

- The park's small, 30 unit campground provides few modern conveniences and the camping sites do not meet current DNR design standards. However, if visitors desire more elaborate overnight accommodations there is a wide choice of public and private overnight lodging, including camping, in the immediate region surrounding the park.

- Rib Mountain is a complement to and an important component of a much wider range of recreation opportunities in the central Wisconsin River Valley. The proximity of nearby public recreation opportunities provides the opportunity to link the park with those lands.

- The majority of visitors come to the park during the warm weather seasons. Fewer visitors arrive in the winter to take in the view of the surrounding countryside, snowshoe or hike on designated trails or walk the park road.

- Low impact forms of recreation such as sight seeing, hiking, snowshoeing, picnicking and observing nature predominate at the park. Social gatherings such as family reunions and weddings are increasingly popular at the park and the crowds these events attract at times create challenges for park management. The park also is a popular outdoor classroom for many local schools and their respective educational missions. The property has a K-6 teacher study guide specific to Rib Mountain.

- The "core developed area" atop the mountain totals about 80 acres or about 7% of the total acreage of the park. Slopes over most of the rest of the park are generally greater than 10% limiting developed facilities other than primitive trails. Vehicle access to the park is limited to one road that leads to the top of the hill. Difficulty in terrain and subsequent construction challenges limits extending that road to link with other parts of the park such as the 3M-property acquisition to the west. Areas of the park, outside of the "core developed area" (principally at the bottom of the south and north slopes respectively) that may be flat enough for developed facilities do not have direct road access from the top of the hill due to the steep terrain.

- 27% of the park, or 422.6 acres, is leased by private and public entities for ski hill operations and non-recreational uses, principally communications facilities.

- Little is known about cultural resources in the park beyond the few historic structures left from the Civilian Conservation Corps (CCC) era.

- At 1,528.6 acres, the park is viewed by some as an "island of green space" in the midst of an ever-growing urban setting.

- The park's forest resource is generally even aged (up to about 80 years), with a mix of upland hardwood predominating. Some species of trees, particularly white birch and aspen are over mature and are beginning to decline in health.
- Three sensitive plant species that are listed as special concern or threatened in Wisconsin have been found in the park.

- The overly abundant deer herd is causing significant damage to vegetative resources in the park.

Conclusions

- Except for the top of the hill, the steep terrain and subsequent limited vehicle access serves to keep most of the park, outside of the ski hill, in an undeveloped state, largely accessible only by a network of primitive trails. Visitors come primarily to take in the views, examine the park's unique geology and terrain and to observe nature. In addition, special events such as weddings, social gatherings and fall colorama viewing have become significant contributors to the overall complement of low impact recreation opportunities offered at the park. Therefore, the overall recreational niche of Rib Mountain State Park is of lower impact non-motorized recreation geared toward casual day use.

- Past property management decisions at times may not have been in the best overall interests of the park. Visitor access to these leased areas is limited and the setting of these areas is not park-like, tending to diminish the visitor experience. In addition, the leased areas at the top of the hill occupy limited flat space restricting future park development options. Present day leases should be monitored and managed to have the least impact on park operations as possible. Future leases should be limited.

- Additional surveys to catalog and preserve cultural and historic resources in the park should be conducted.

- Attention should be paid to forest management that emphasizes the long-term protection and enhancement of the park's forest resources. This is essential, due to rapid urban development in the area that tends to isolate Rib Mountain from the larger landscape.

- Because sensitive plant resources have been found in the park, those areas of habitat deserve special management attention to prevent the loss of plants of state special concern and threatened status.

- Efforts should be made to reduce the overall size of the deer herd. Park management cannot do this alone. Reducing the deer herd to sustainable levels will take a public and private effort in the community potentially using innovative methods to bring the deer herd under control.